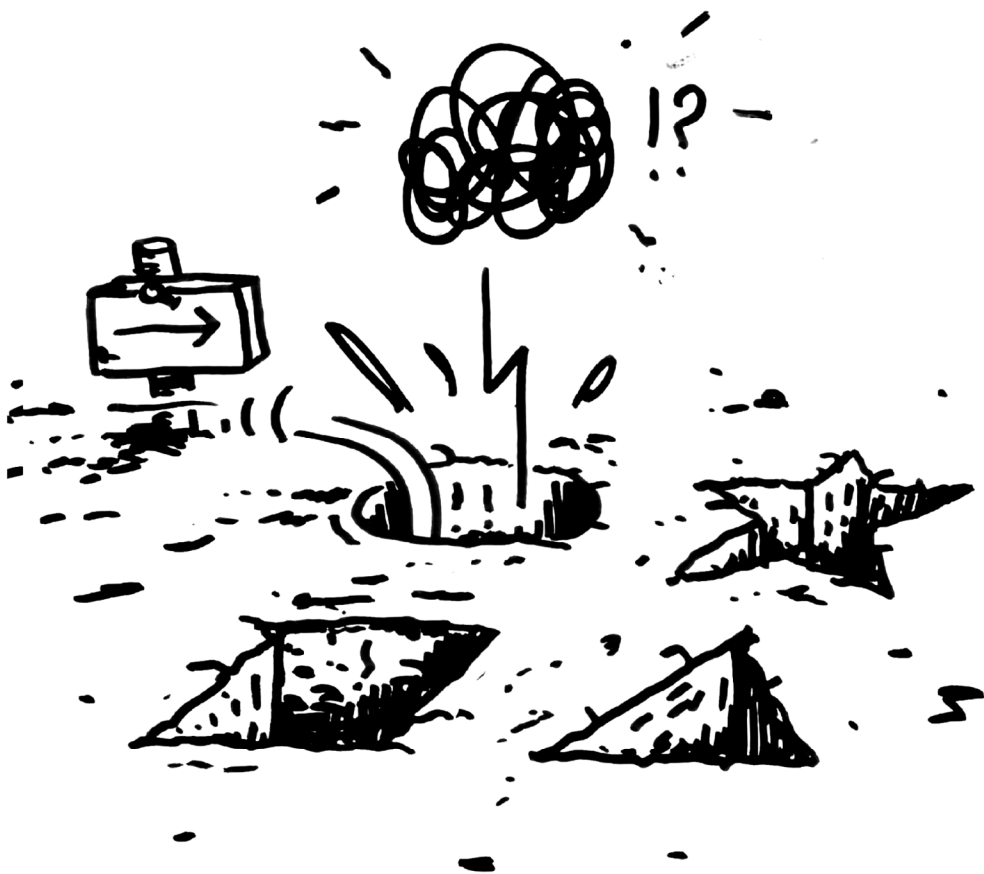


PROGRAMMING WITH GRWLIXES 2

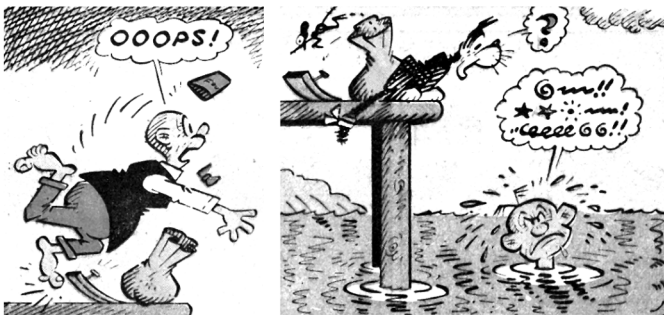
HOW GRWLIXES STRUCTURED COMIX



MARC VON ELBURG 014

Introduction

‘Basic Grawlixes’ are repetitive, scribble-like patterns that are related to the structure of a cartoon-characters’ background program responsible for a routine. When this routine is suddenly cut-off by an unexpected event, the trace of the program continues as it is brought under attention.¹



Spooky, Bill Holman (1945)

An example of a cut background program.

The act of walking was blocked by the loose nail. Its background program 'step-step-step' did not complete its routine but the trace continues automatically. First as a long repetitive OOOPS! Then, when the cut is definite, followed by Grawlixes.

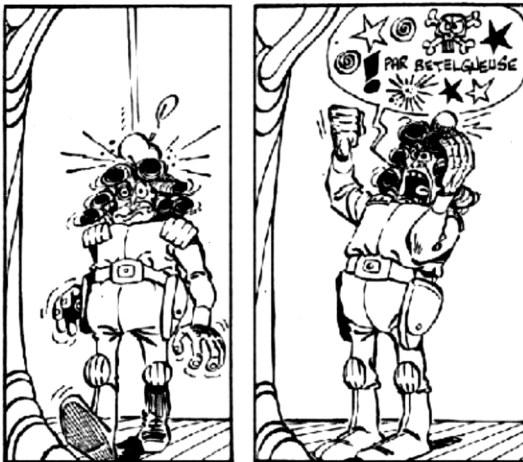
Background programs are habits that tend towards mechanistic autonomous loops. Normally these have no significance for changes in the narrative and will not be visible in the cartoon.

The automation of a habit is a consequence of divided attention. A skill that at the same time creates the absent-mindedness that prepares the situation for the unexpected cut that precedes the utterance of Grawlixes.

When the completion of an automatic background program is suddenly blocked by an unexpected event, its trace enters the panel-frame in the form of simple iterating line-segments.



Grawlixes are often defined as substitutes for cursing, but the previous zine argued that Grawlixes provided the structure for curses, and just like we are afraid because we tremble, and trembling is not always a sign of fear, curses are but one *possible* interpretation of Grawlixes, and Grawlixes do not necessary always end up in curses after a cut routine.²



Newton's moment of insight. (le Journal d'Isaac Newton, Gotlib, 1983)

Grawlixes appear where 'the unpredictable' challenges the concept of a deterministic universe

This zine will show that Grawlixes are identical to some of the fundamental schematic patterns that are responsible for the structure of the cartoon itself. My goal is not to give a complete account of what comics are.³ The reason I try to put into words something about the nature of Grawlixes is because I think Grawlixes point towards a grounding puzzle that may not be very different from the one at the foundations of modernism and abstract art.⁴

This not Adjective!



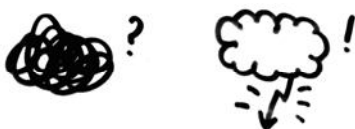
Thimble Theatre, E.C. Segar (1929)

In this sequence of *Thimble Theatre*, E.C. Segar points out the possibility of using Grawlixes as adjectives.

Adjectives modify or change nouns, but the previous zine showed that Grawlixes are a product of movement, this would make them adverbs; not qualities of objects, but qualities of actions. Not the ‘what’ but the ‘how’. And because Grawlixes are only traces of movement, that is; motions without agents, this makes them a kind of ‘dummy adverbs’.

Basic Grawlixes are relatively simple trajectories that repeat all the time. They are patterns with a high degree of self-similarity. This makes Grawlixes ambiguous signs in the communication because there is no causal history derivable from the trace.

Likewise, most images that *represent* Grawlixes do not point towards tangible objects or agents. Instead they refer to situations beyond control of the character like ‘death’ or ‘the weather’.⁵



Grawlixes appear where continuation is frustrated by conflict. Grawlixes continue the path, but do not represent a real solution or shortcut for the problem. Referring to the weather will not prevent it from happening again. The weather is just another representation of the automatic and involuntary continuation of a routine, a more recognizable version of a sequence of dummy adverbs: a motion without an object that is a motion without an object that is a motion w...etc. etc.

Grawlixes are of the same ‘stuff’ as the arrow that pointed the program towards its goal. They are like the ‘*THIS*’ in Rene Margrittes’; ‘*THIS* is not a pipe’. A link that links to itself. Its ‘substance’ is magnitudes and intensities. ‘*THIS*’ is very, *VERY*, *VERY*, ***VERY!***⁶



You're a plugger if you locked the spare house key in your car, and the spare car key in the house.

Pluggers, Gary Brookins (2001)

‘The Encrustation of the Mechanical Upon the Living’⁷

It is the gradual loss of the flexibility of a habit, that moved it out of attention and now shifts its natural motion towards the mechanical automatism of a dead routine. This prepares the scene for the unexpected cut.⁸

Man’s fall caused by the absent-mindedness of routine behavior is present in jokes and humor through the ages.

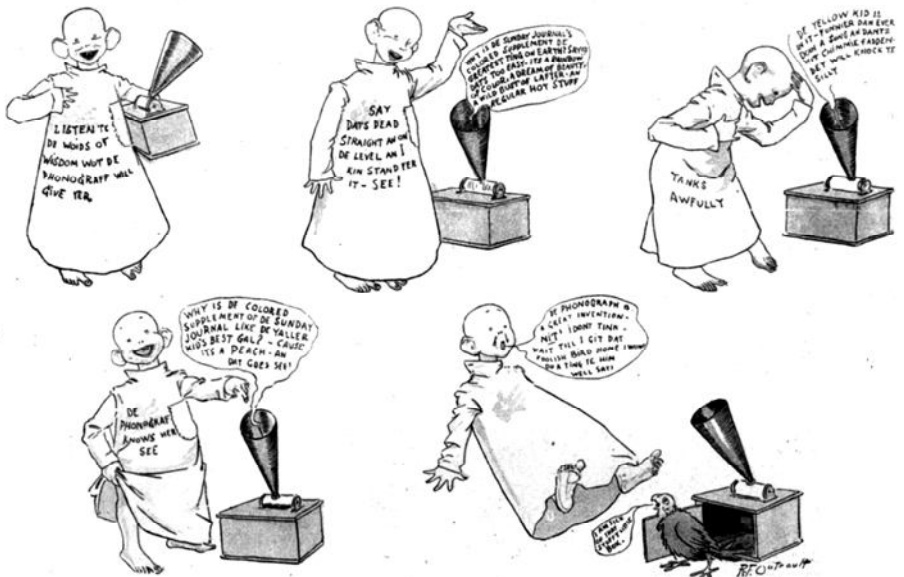
But the tension between the mechanical and the natural became *THE* major theme of the culture of the mid 19th and early 20th century. It was at the same time Grawlixes appeared with the first comics.

The Vaudeville characters that populated the theatres during the early days of the industrial revolution, became more and more subject to the hardcore automation of the new assembly lines which had its effect on all levels of society. For example in the new science of psychology, where the behaviorist image of man as a simple stimulus-response machine on one side was contrasted with the psychodynamics of man’s behavior governed by dark suppressed primitive subliminal drives.

Cartoons matured inside the growing sphere of influence of production and demand of the new industries. The unrelenting routinization of Fordism spread

This yellow kid cartoon is considered to be one of the first drawings that has all the basic characteristics of the comics. Besides the fact that the Yellow Kid was the first commercially successful cartoon-character, the crux of this cartoon is built around exactly that tension between mechanical and creative behavior.⁹

A Farce, a Comedy and a Tragedy, All in One, Showing How, In Every Case, Murder Will Out, and Virtue is Its Own Reward.



The Yellow Kid cartoon also incorporates all the necessary conditions for Grawlixes to surface; a *mechanical concept* is presented as an ideal, and its formal logic is *assumed* to be a sign of wisdom and *truth*. This is *contrasted* with the kids flawed *unconventional slang*. The concept is unexpectedly *Cut off* by a hidden logic when the machine turns out to be nothing more than a simple copycat. The cut has a constricting effect on the flexibility of the character. On top of this there is a *self-referential* hint as the yellow kid himself is also a medium for statements and comments (his coat serves as a kind of voice over). Therefore, the appearance of the parrot not only cuts off the assumption of a perfect machine, it also questions the overall concept of the cartoon.

Automatoon

The basic Grawlix is a rather general repetitive trajectory. Its behavior can not in itself be traced back to a specific cause, but its hunting self-oscillating, artificial life began at the very peak of the machine age of the late 19th and early 20th century.

The connections with the industrial era at the times of its birth, are deeply embedded in the earliest forms of cartoons. It is this concept of a primal machine that drives the earliest primitive cartoon sequences.

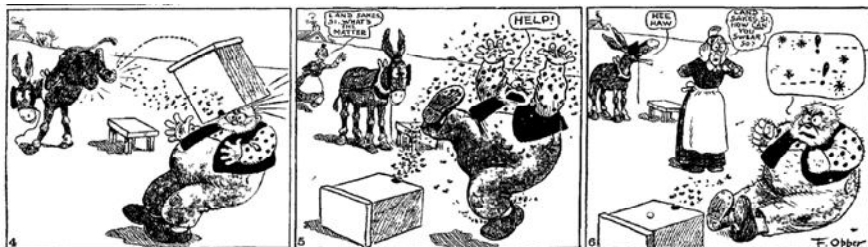
Many of the first comics are representations of a Grawlix-producing pattern; the running gag, a repetitive motion along a path-towards-a-goal that is cut-off all the time.



And Her Name Was Maud, Frederick B. Opper (1905)



And Her Name Was Maud, Frederick B. Opper (1905)



And Her Name Was Maud, Frederick B. Opper (1905)

The cartoon behaves like a dynamic machine.

The mismatch between two habitual patterns of behaviour causes a break.

The break does not end the path but is the driving force behind the variations of a single narrative routine: *Peaks drive the narrative sequence*.¹⁰

Fixation: Why does the villain never get the girl?

Within the automation of the industry, the nature of every part of a sequence is determined by the limitations of its time slot.

Automatic routines in production methods remove noise, polarize and limit degrees of freedom. Narratives standardize into formulas. Patterns of behavior and form become increasingly prototypical, homogeneous and one-dimensional. The increasing contrast fixates the characteristics of the classic vaudeville actor to juxtaposed points in the pattern.

Characters merge with the slots in a frame and become the sprockets of the narrative chain.

In their most polarized form they become the mindless coordinates of a one-dimensional, deterministic system in which

the mechanistic and the natural move towards the unpredictable but inevitable moment of collision.

The mechanistic coordinate is designated by the linearly, symmetrically, rationally, formally, digitally, rigidly and un-lively.

They are the inelastic modes of relentless accountants and scientists, robots, scrooge bankers, grumpy old conservatives, single-minded fundamentalists, male chauvinists, authority figures, commanders, drill sergeants and puritans. On the other side, the non-linearly, non-symmetrically, non-rationally, informally, analogically, fluidly and lively designate the natural or non-mechanistic coordinate.

They are the elastic modes of the boy heroes, mad artists, idealists, kids and rascals, animals, bohemians, the primitives, the innocent and poor.



Hairbreadth Harry; the boy hero and Relentless Rudolph, C.W. Kahles (1920)

The boundless imagination of a child contrasted against the restrained concept of reality of adults in *Little Nemo*.

Beetle Bailey, a lazy, anti-authoritarian G.I. under the military discipline and verbal chastising of a drill sergeant

Gaston Lagaffe, a slack, creative, non-conformist office junior repeatedly colliding with a short tempered editor at the strictly organized office of a journal.

Asterix and the natural anarchic organization of the Gauls, frustrating the disciplined uniform organization of the Roman occupiers.

Pretty much all the oppositional archetypes that populate slapstick and screwball comedy like cops vs. robbers, dogs vs. cats and cats vs. mice, men vs. women etc.

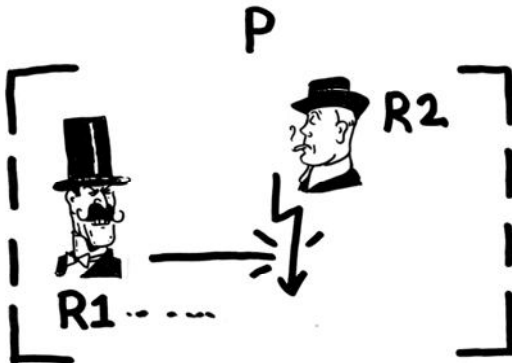
Grawlix Generator

Grawlixes appear where the mechanistic collides with the natural in the infinite recurring loop of an automaton.

The layout of the panels in those cartoons that contain Grawlixes are almost exact copies of diagrams used to explain the structure of verbal humor and jokes where:

*The logical path of one routine; **R1** (sometimes called code, program, matrix or object), is collided with the logical but apparently incompatible path of another routine **R2**.*

*These two routines **R1** and **R2** have to be present in a single panel frame **P** (sometimes called idea, concept, situation or event) at the same time.¹²*



Two routines follow a single narrative path towards its goal. As the narrative progresses it becomes clear that only one of the routines will complete its program and the difference between them becomes apparent.

The diagram is a schematic representation of the structure of jokes that are based on incongruence and logical paradox.

Most comics that depict Grawlixes on a regular basis appear to be mapped onto a similar structure.

Grawlixes pop up right after the moment of collision where laughter is expected in the diagram, and squeeze through the most rigid point in the panel-frame.



One could conclude from the diagram that the collision is the settling of a conflict and that Grawlixes that follow the collision represent the release of subconscious energies suppressed by this conflict.¹³

P (R2→←(R1 not R1)) = P (R relief→)

Instead this zine shows that Grawlixes just prolong the void left by the default illusionary program *as-if it is still a path.*

P (R2→←(R1 not R1)) = P (R → !? ←)

It is the image you have of your *self, sitting down when someone has already pulled the chair from under you.* It will only fade *after* you realise you're falling, when it is too late to change it, and you are already halfway to the floor.

Since both routines in the diagram are part of the same one-dimensional pattern, the oppositions are really just 'dumbbell distinctions', a single formula twisted around to collide with itself.¹⁴



The internal collision represented by the diagram inflates a kind of *pseudo* speech-balloon.¹⁵ It is *the internal structure of a single concept that 'reaches out'*.¹⁶



The formula is not the gun that fires the bullet that pulls the trace over the horizon, nor is it the path that leads you towards a landmine that is your own but which you forgot all about.

It was the mechanics behind the instant freeze that produced the utterance: The internalised flight-response to a snake *that was never there*.

You have created it before you were able to see it



The relentless banker and the natural boy hero were oppositional archaic vaudeville characters who's different traits are mapped onto a single structure. They are of the same 'stuff'.

And Grawlixes are not so much elements of the structure that remain after you remove the characters, they are what remains after you remove the loop.^{17 18}

Uncertainty

In this example of Felix the Cat, there is a sequence where the pattern that contrasts the most rigid point is not represented by some relentless character but lies hidden inside the conceptual structure of a line.

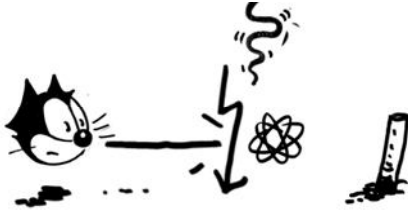


Felix the Cat, Otto Mesmer & Joe Orlio. (1948(?))

Felix the cat starts what appears to be the most flexible path in the panel; a natural swing towards a goal.

But the line turns out to be not the anticipated rope but an electric wire.

The motion is brought to an abrupt halt by the unexpected hidden natural force that prompts the frivolous path. Consequently, Grawlixes pop-up as representations of symmetrical trajectories of subatomic particles and planetary orbits.



Points and lines are one-dimensional simplifications and abstractions that can have multiple meanings.

Which point turns out to be the most rigid in a panel frame is not always obvious. The rigid is the counterpoint of the natural in a panel frame, but fixating the natural to a one-dimensional point is a slippery affair. The natural is relatively immune to artificial boundaries and can easily shift its location, sometimes even surprising the most flexible of characters when they find themselves as a service hatch for Grawlixes in the rigid corner.

The Worry Room

What if there is no object to serve as a rigid point? What if there is just a natural boy hero, isolated in a frictionless frame?



Little Sammy Sneeze, Winsor Mc. Cay (1905)

The 'spontaneous' sneeze of an isolated fictional cartoon character introduces the ultimate unpredictable counterpoint: The program of chance itself. The unexpected sneeze catapults the naturally into the rigid seat and cuts it from the panel-frame.

Causality is reversed, the experience of the character effects the structure of the cartoon itself, in other words; the sneeze was 'REAL'.

Blocking the mode of an isolated natural character causes a change on a more profound level inside the cartoon.¹⁹

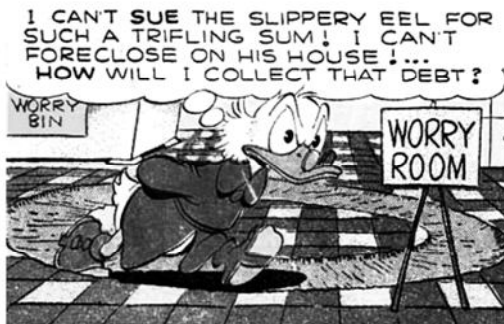
The cut is not a gimmick, it is a fundamental ingredient of the earliest structure of comics.

It is the creative drive behind its evolution towards alternative organisations.

The cartoon is not just a sequence of animistic drawings that follow some kind of mechanistic self-referential pattern, it is a *living machine*. *Its entire structure is animistic!*

The examples show how Grawlixes are not a product of the mind of one particular character, but move around the structure of the cartoon. Automatically following the most rigid point in the entire structure of the drawing.

It looks like the fixations of the relentless banker connected him to a hidden force that reaches deep into the structure of his own universe!?!



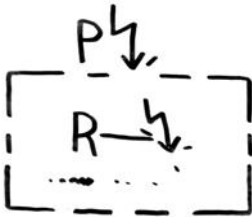
Scrooge McDuck; another version of the vaudeville villain banker, mapped on a basic continuous repetitive pattern. Carl Barks(1944).

His mechanistic traits make him the ideal release point of Grawlixes; in other words, the less mechanistic he behaves, the more profound his influence on the structure of the cartoon!

This is the dramatic madness of the rigid character; circling his own coordinate is what keeps him inside the narrative conflict.

The creative flash of insight he needs to escape this trap, can only happen if he no longer identifies with the rigid-mechanistic position, that is at the same time

the engine that drives the narrative forward. It means he can only succeed if he deletes himself from the cartoon!



The element of chance captured in the unexpected sneeze that cuts-off the natural routine of Little Sammy, at the same time debunks the concept of space and time as it is structured by the panel frame.²⁰



The entire cartoon collides with the real.
 The narrative structure implodes.
 Grawlixes move in a space-time vacuum.
 The profoundly profane.

The Squeeze

The previous chapters showed how events responsible for the appearance of Grawlixes underlie the fundamental structure of early comics. Repetition, motivated by the deadlines of the modern industries, fixated characters to locations on that pattern and these characters increasingly identify with those positions. Therefore it is not unlikely that even though they may have started as random gestures, the same dynamics of repetition and demand have their effect on the nature of the trajectories of Grawlixes, and move its appearance towards a close resemblance of that pattern.

Some of the most common shapes are various types of crosses and lattice patterns.²¹



One explanation maybe that the crosses represent the smallest, most primitive or basal gestural remains of a conceptual structure that imploded in a self-destructive loop.

But crosses are not the most primitive forms of expression. As drawings, crosses are more skillful figures than scribbles.

If Grawlixes tend towards the most primitive; why do they not just look like crude gestural marks? The body can draw scribbles and swirls blindfolded and practically autonomously on internal pattern generators. Crosses on the other hand need coordination and orientation, the eye needs to tell the hand where it is and where it needs to go.



In children's drawings the cross marks the point of basic eye-hand control, it is the pre-schematic period of early goal-directed, intentional behaviour.²²

The cross marks the stage right before the reaching out.



It is the period where automatic scribbling moves towards the first use of learned conventional signs.

This suggests that the crosses and hash-tags in Grawlixes are indicators of a motion *TOWARDS* meaning.

However, an alternative explanation for the presence of the hash-tag may be that it is simply an arbitrary symbol, the result of blind hits on a keyboard or typewriter and lattices are just badly drawn hash-tags.²³

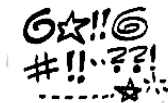
But if this is true; why are there not more random sequences of letters, since these occupy the majority of the keys on a keyboard!?

Some kind of selection procedure seems to have been made.

It is possible they are used as arbitrary symbols that are not part of natural language, but that does not explain why there is not an equal amount of &%\$ signs.

One difference between these signs and hash-tags is that &%\$ are signs with relatively fixed single meanings, whereas the # hash-tag or 'octothorp' has a variety of different meanings that depend on how exactly it is drawn and in what context its used.

It can mean Pound, Hex, Number, Square, and comment sign, it has been called “crunch,” “hex,” “flash,” “grid,” “tic-tac-toe” and “pig-pen.” It may have sprung from the roman term for scales from which the constellation takes its name. But within Grawlixes its shape also often resembles that of the musical symbol called sharp used to indicate an increase in pitch.²⁴



a sharp
(little Odine)



tic tac toe
(Popeye)



lattice patterns
(the Adventures of Nero)



hash tags
(Wolverine)

This suggests that the choice for the hash-tag is a choice *for that keyboard symbol that is the most ambivalent or the most general*, which indicates a move *AWAY FROM* specific meaning.²⁵

This all seems rather confusing and sounds like there is still no substantial progress being made towards knowing anything about Grawlixes at all!?!?

However, it is not unthinkable that both conclusions are equally true.

The two *modes of inquiry* above are themselves two colliding motions within a single concept.



One of the inquiries is moving inward. Zeroing in, within the limits of its own interface (written language), towards *that* sign that is most objective, that can convey meaning in the most analog, unmediated manner.

The other inquiry moves outward. Limiting its natural elasticity towards a general motion, like a general ‘crisscrossing’ or ‘spiraling’ (drawing). Who’s trace can serve as a primitive universal symbol, a crude attempt towards conceptualization and symbolic meaning.

Squeezed between them is an unmarked territory.

It is the gap left by the cut routine, the force that is no longer there.

It is this gap that Grawlixes encompass.

Conclusions

Grawlixes are motivated by an internal conflict.

Their shape is a product of two colliding, oppositional modes of inquiry.

Sometimes, when a background routine is unexpectedly cut-off, its pattern, fixated by repetition, continues as it is brought under attention in the panel frame. The cut is grounded in an internal conflict between mechanistic and natural logic. The absence of the activity that was responsible for the pattern, sets off two colliding, oppositional modes of inquiry towards the exact location of a path that is no longer there.

The shape of Basic Grawlixes is not completely arbitrary because the mechanistic mode, that moves inward towards the most objective point in the equation is restricted by the limitations of its interface. It is not random because the natural mode, moving outward towards the most universal point is grounded in bodily movement.

The shape of Grawlixes does not indicate a regression to a childlike or primitive state, nor is it a transcending reflex into to a spiritual realm: It is a semi controlled move towards an experimental creative field between contemporary knowledge and experience.

Combined Grawlixes form micro-narratives that constitute the primitive architecture of comics.

The pattern left by the program of a cut routine continues without the act, that is; Grawlixes are not just abstract representations of the collision between the mechanistic mode of relentless bankers, and the natural mode of the naïve boy heroes, but they are the continuation of the conflict on a more profound level.

Grawlixes guarantee: *'THIS'* is far from over!



Notes

¹ Grawlixes; Walker, Mort. *The Lexicon of Comicana*, (iUniverse.com. 1980, 2000)

² see also ;van Elburg, Marc. *Programming with Grawlixes I*. (2013) and the *James-Lange theory of emotions*. URL= http://en.wikipedia.org/wiki/James%E2%80%93Lange_theory

The first grawlixes were introduced by cursing sailors like the captain of the Katzenjammer Kids, Binnacle Jim and Popeye (later perfected by captain Haddock). Early Grawlixes were composed of anchors and sailor tattoos. (Zimmer, Ben. *How did @#%&! Come To Represent Profanity?* (@lexiconvalley))

Are all cartoon character cursing like sailors?

This article in MAD clearly shows how naval representations like anchors provide just one of many possible interpretations of Basic Grawlixes as expressed by the ‘primitive’ in the top-left corner of the article.



(Clark, H. Clarke, B. MAD #214, 1979)

Without grounding in basic Grawlixes the expression would be just like a rebus; you put the symbols together logically and you know the message. It is the ambivalence of the basic Grawlixes that forces someone to look beyond the logic of conventional language, to the pattern, the sound, the unspeakable.

³ For this I recommend; Cohn, Neil. *The Visual Language of Comics*. Bloomsbury(2013) and McCloud, Scott. *Understanding Comics: The Invisible Art*. Harper Collins (1993) and more specific for the visualisation of motion and emotion in comics the publications of Dr Ch. J. Forceville. *Pictorial runes in Tintin and the Picaros*. Journal of Pragmatics (2011)

⁴ I see a relation between the meaning of Grawlixes and early 20th century ideals of a ‘pure’ abstract art that started to take shape around the same time. Before modernism, representation in European art served as a ground or vehicle for the meaning of the work of art. In the abstract ideal, meaning is intrinsic to the work, ground and meaning are the same.

The ‘puzzle’ being that when abstract art as formalism is not grounded in past experience it often ends up as meaningless form-play or the routine of a programmed machine. And when,

on the other side, abstract art as expressionism is not somehow also conceptualised towards a future goal, it is often not much more than the therapeutic release of built up tensions evoked by a self-destructive implosion, and idealised as the return to a primitive or childlike state. The paradox led to the random collages of post-modernism where the relation between signifier and signified was completely discarded and the formation of meaning was all left up to the observer.

⁵ or dummy pronoun; like the 'it' in 'it is raining'. (see; wiki/Dummy_pronoun)

⁶ see also; Hofstadter, Douglas. *I Am a Strange Loop* (pag. 160) Basic Books (2007)

⁷ from; Bergson, Henri. *Laughter: An Essay on the Meaning of the Comic* (1900) English translation 1914"

⁸ see also Bergson (1900); "mechanical inelasticity" which is the result of habit, the result of acting solely in accordance to our previous experience without paying need to our contemporary situation (...) through lack of elasticity, through absentmindedness and a kind of physical obstinacy, as a result, in fact, of rigidity or of momentum, the muscles continued to perform the same movement when the circumstances of the case called for something else. That is the reason of the man's fall, and also of the people's laughter"(...)

⁹ see Walker, Brian. *Comics, The Complete Collection*. Abrams Comic Arts (2002,2011)

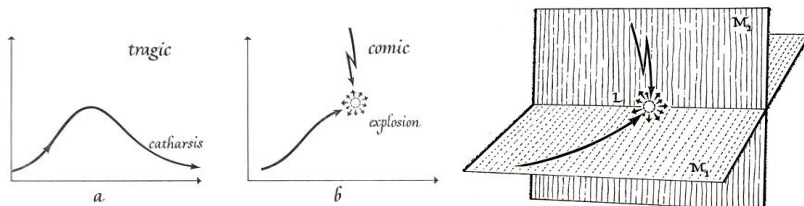
¹⁰ "Peaks drive the narrative sequence" from; Cohn, Neil. *The Visual Language of Comics*. (pag.80) Bloomsbury (2013)

¹¹ "the mismatched pair" Walker, Brian.(2002,2011)

¹² Theories of Humour;

Rutter, Jason. *Stand-up as interaction: Performance and Audience in Comedy Venues* (1997)"

Aspecially Koestler's diagrams "Koestler, Arthur. *The Act of Creation*. Danube Edition London, Hutchinson & Co LTD 1st ed. (1964 , 1976)



But also Raskin, Viktor: *A text that is compatible, fully or in part, with two different scripts, and the two scripts with which the text is compatible are opposite.*

And Minsky, Marvin. *Jokes and their Relation to the Cognitive Unconscious*. (1981)

Minsky talks bout the unexpected frame-substitution, in which a scene is first described from one point of view and then suddenly (...) one is made to view all the scene-elements in another, quite different way.

¹³ I think it is possible to see cartoons with Grawlixes as representations of man's 'failure to complete', and in that way presenting an ironic contrast to theories of 'sudden insight' (see for example the Gestalt vs. 'Nothing Special' discussion)

¹⁴ *dumbbell distinctions*; Minsky, Marvin. *The Emotion Machine*. Simon & Schuster Paperbacks (2006)

¹⁵ Like the so-called pseudopodia of amoebas.

¹⁶ *reaches out*; Hofstadter, Douglas R. *Variations on a theme as the essence of imagination*. Metamagical Themas (1982)

¹⁷ Marvin Minsky talks about cognitive censors that follow a logical paradox, as a kind of intellectual counterpart to Freud's emotional censors. A way to learn to avoid bugs and

mistakes, *'the frightening cyclone that follows a cognitive failure functions as a kind of cognitive authority figure'*

¹⁸ *Why is repetition funny?* (Rutter, Jason (1997)); I think because being submitted to repeating varieties of the same structure over and over again, like reading cartoons in the daily papers, is similar to the mechanical repetition imposed on the cartoon character.

It puts the observer in the position of the rigid, inelastic character.

In the Maud cartoons; the rigid farmer embodies the mechanical logic that leads the narrative in a straight path towards the kick of the mule. As reader/observer you know it is going to happen because it happens again and again, but you don't know how or when because of little variations in the theme (for example the mule doesn't always kick in the last frame and may not always hit the farmer). The variable timing is the elastic pattern that contrasts the mechanical fixation of the observer and that determines the moment Grawlixes appear i.e. when the parrot walks out of the empty machine (laughter...)

It is not unlike being tickled; you are *semi-involuntary* captured in a *repetitive* routine by some *external* agent (like for example an assembly line) and poked with *anticipated* but *unpredictable* timing (you can't tickle yourself)

The appearance of observer and character within a single narrative frame creates a paradox;

*"if I believe that I am not an illusion then the cartoon is not an illusion,
but if I consider the cartoon to be an illusion then I must be an illusion too?!"*

When the strange loop is apparent, the frame is dropped and the motions (Grawlixes) continue as laughter in the observer. Even if there is not something new, something appears to have moved from one level to another.

¹⁹ *Generally, a breakdown is seen as undesirable, something to be avoided, and the mark of a bad machine. Here it has become the supreme virtue of living machines: the creative drive, the power to generate alternative organizations in order to adapt to the environment".* Asaro, M. *the philosophy of W. Ross Ashby.* In; *The mechanical Mind in History.* Bradford Books (2008)

²⁰ McCloud, Scott.(1993) pag 100; *"in learning to read comics we all learned to perceive time spatially, for in the world of comics, time and space are one and the same."*

²¹ From all the Grawlixes in the list of Gwillim Law, about 33% are some form of crosses or lattice works. Law, Gwillim. *Grawlixes Past and Present* (2010).

<http://www.statoids.com/comicana/grawlist.html>

²² See Kellogg, Rhoda. *Analyzing Children's Art* (1970) (<http://www.early-pictures.ch/en/>) and Piaget, Jean. *The Psychology of the Child* (1969)

²³ Or as Gwillim Law describes: *"It appears that the earliest Grawlixes were dashes and asterisks. That suggests that they may have been derived from 19th-century typographic conventions for unprintable language. Five-pointed stars were already being used in comics of the 1890s as a symbol of pain. They also appear in early Grawlixes. After cartoon Grawlixes had become familiar to the public, some authors found it convenient to simulate them in print by using some of the shifted number keys on their typewriters: predominantly @, #, \$, %, &, and *. This, in turn, has led to some cartoonists using only those symbols in their Grawlixes, to the neglect of the jarns, quimps, and nittles that are proper to comicana."*

Gwillim Law (2010)

²⁴ Houston, Keith. *Shady Characters: The Secret Life of Punctuation, Symbols, and other Typographical Marks.* W.W. Norton & co.(2013)

²⁵ the same goes for the relation between spirals and @.

